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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/099,831	03/15/2002	Khurram Muhammad	TI-32802	2635

7590 10/24/2003
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EXAMINER

DAVIS, TEMICA M

ART UNIT	PAPER NUMBER
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2681

DATE MAILED: 10/24/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
10/099,831

Applicant(s)
Muhammad et al.

Examiner
Temica M. Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Mar 15, 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 15-19, and 35-39 is/are rejected.
- 7) ☒ Claim(s) 3-14 and 20-34 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 7 6) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 18, 19, 35 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Peterson et al (Peterson), U.S. Patent No. 5,697,078.

Regarding claim 1, Peterson discloses a method of downconverting a first periodic voltage waveform into a second periodic voltage waveform, comprising: obtaining from the first voltage waveform a plurality of temporally distinct samples respectively indicative of areas under corresponding half-cycles of the first voltage waveform; combining the samples to produce the second voltage waveform; and manipulating the samples to implement a filtering operation such that the second voltage waveform represents a downconverted, filtered version of the first voltage waveform (col. 1, line 53-col. 2, line 12, col. 4, lines 1-48, col. 6, lines 22-31).

Regarding claim 2, Peterson discloses the method of claim 1, wherein said obtaining step includes transforming the first voltage waveform into a corresponding current waveform, and integrating each half-cycle of the current waveform (col. 6, lines 22-31).

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Regarding claim 18, Peterson discloses the method of claim 1, wherein the first voltage waveform is an RF waveform (col. 1, lines 43-65).

Regarding claim 19, Peterson discloses an apparatus for downconverting a first periodic voltage waveform into a second periodic voltage waveform, comprising: an input for receiving the first voltage waveform; a sampler coupled to said input for obtaining from the first voltage waveform a plurality of temporally distinct samples respectively indicative of areas under corresponding half-cycles of the first voltage waveform; a combiner coupled to said sampler for combining the samples to produce the second voltage waveform; and at least one of said sampler and said combiner operable for manipulating the samples to implement a filtering operation such that the second voltage waveform represents a downconverted, filtered version of the first voltage waveform (col. 1, line 53-col. 2, line 12, col. 4, lines 1-48, col. 6, lines 22-31).

Regarding claim 35, Peterson discloses a communication receiving apparatus, comprising: an input for receiving a communication signal formed as a first periodic voltage waveform; a mixer coupled to said input for downconverting the first periodic voltage waveform into a second periodic voltage waveform, including a sampler coupled to said input for obtaining from the first voltage waveform a plurality of temporally distinct samples respectively indicative of areas under corresponding half-cycles of the first voltage waveform, a combiner coupled to said sampler for combining the samples to produce the second voltage waveform, and at least one of said sampler and said combiner operable for manipulating the samples to implement a filtering operation such that the second voltage waveform represents a downconverted, filtered

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version of the first voltage waveform; and a signal processing portion coupled to said mixer for receiving and processing the second voltage waveform (col. 1, lines 53-col. 2, line 12, col. 4, lines 1-48, col. 6, lines 22-31).

Regarding claim 36, Peterson discloses the apparatus of claim 35, wherein said communication signal is an RF communication signal (col. 1, lines 43-53).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 15-17 and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson.

Regarding claims 15-17 and 37-39, Peterson discloses the filtering operation/apparatus of claims 1 and 35. Peterson, however, fails to disclose the filtering to include FIR, IIR, fractional coefficient filtering, differential coefficient filtering or triangular coefficient filtering.

The examiner contends, however, that these types of filtering are well known in the art, and the examiner takes official notice as such.

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At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify Paterson with these types of filters, since they are widely used in removing unwanted signals.

Allowable Subject Matter

5. Claims 3-14 and 20-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 3, prior art fails to suggest or render obvious an integrating step includes using each half-cycle of the current waveform to charge a corresponding capacitor.

Regarding claim 20, prior art fails to suggest or render obvious wherein the sampler includes a transconductance amplifier for transforming the first voltage waveform into a corresponding current waveform, and a plurality of capacitors coupled to said transconductance amplifier for integrating each half-cycle of the current waveform.

Regarding claims 4-14 and 21-34, they are indicated allowable based on their dependence of claims 3 and 20.

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Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Temica M. Davis whose telephone number is (703) 306-5837. The examiner can normally be reached on Monday-Thursday from 7:00 am to 4:00 pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Sinh Tran, can be reached on (703) 305-4040.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to TC2600 Customer Service at (703) 306-0377.

Any response to this communication should be mailed to:

Commissioner of Patents and Trademarks

Washington, DC 20231


Or faxed to:

(703) 872-9314 (for any communications intended for entry).

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

TMD

October 20, 2003


TEMICA M. DAVIS
PATENT EXAMINER